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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,168	03/29/2001	Stefan Pleisch	CH20000077	4016
48813	7590	09/15/2005	EXAMINER	
LAW OFFICE OF IDO TUCHMAN (YOR)			ZHONG, CHAD	
69-60 108 STREET			ART UNIT	
SUITE 503			PAPER NUMBER	
FOREST HILLS, NY 11375			2152	

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/821,168	Applicant(s) PLEISCH ET AL.	
	Examiner Chad Zhong	Art Unit 2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

*P*

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### OFFICE ACTION

1. This action is responsive to communications: Amendment, filed on 03/31/2005.
2. Claims 1-18 are presented for examination. In amendment B, filed on 03/31/2005:  
Claims 1, 10, and 12 are amended.  
Claims 16-18 are newly added.  
Claims 2-9, 11, and 13-15 are previously presented.

#### *Claim Rejections - 35 USC § 112, second paragraph*

3. Claims 1, 10, and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
  - a. The claim language in the following claims is not clearly understood, rendering the claims indefinite:
    - i. As per claim 1, line 13; claim 10, lines 14; claim 12, lines 12, teaches "moving a modified mobile agent resulting from the successful execution to the next stage from at least two forwarding places"  
It is not clearly understood how it is possible to move ~~to~~ the result of successful execution from at least two forwarding places. Since only one primary place is executing, the primary place should be forwarding results of successful execution to at least two forwarding places. For the purpose of examination, the Examiner will interpret "from at least two forwarding places" as "to at least two forwarding places".

#### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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3. Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Rothermel et al. (hereinafter Rothermel) "A Fault-Tolerant Protocol for Providing the Exactly-Once Property of Mobile Agents", 1998.

4. As per claim 1, Rothermel teaches a method of operating a mobile agent (Fig 2, item S1, S2, wherein the S1 and S2 are mobile agent stages) that travels through a network of a number of computers, wherein the mobile agent is executed in a sequence of stages (Fig 2) and wherein each stage comprises a set of places (each node is fully capable of receiving multiple incoming processes, see for example, Fig 2, Fig 3 there are plurality of processes/put going from stage 1 to stage 2), the method comprising the following steps:

executing the mobile agent in at least one of the set of places of a respective one of the stages (Fig 1, execute),

evaluating (abort is not triggered, and put is performed) in which place (Fig 2, nodes 1 through 5) of the respective stage the mobile agent has been executed successfully (Fig 3, wherein a successful execution entails going from  $S_i$  to  $S_{i+1}$ ),

agreeing on a primary place (priority of worker node; Fig 2 and 3, node 1 in stage S1 would be a primary place amongst other places) among the set of places (pg 3, Col. 1, lines 1-25; Col. 2, lines 25-32),

aborting and/or undoing any operation in connection with the mobile agent in any other place of the respective stage (pg 2, 3<sup>rd</sup> paragraph; pg 3, Col. 2, lines 25-32), and

moving a modified mobile agent resulting from the successful execution to the next stage (Fig 3, the agent is moved to next stage  $S_{i+1}$ .) from at least two forwarding places (pg 3, Col. 2, lines 28-35, wherein plurality of places are involved in determining which of the forwarding places would send the data to the next stage).

5. As per claim 2, Rothermel teaches teach the method of claim 1 wherein the steps

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are repeated for any one of the sequence of stages (see for example, Fig 3; pg 3, Col. 2, lines 40-45).

6. As per claim 3, Rothermel teaches the method of claim 1 wherein the mobile agent is executed sequentially in the set of places of the respective stage (Fig 3, going from stage  $S_i$  to  $S_{i+1}$ ), and wherein the mobile agent is not executed anymore in subsequent places after successful execution in one of the set of places and agreement on this successful execution (pg 3, Col. 2, lines 25-33).

6. As per claim 4, Rothermel teaches the method of claim 1 wherein a decision is generated in each stage including at least one of the primary place that corresponds to the place in which the mobile agent has executed successfully (pg 3, Col. 1, lines 1-15; Fig 2), the set of places of the next stage to which the modified mobile agent is moved, and the resulting modified mobile agent.

7. As per claim 5, Rothermel teaches the method of claim 4 wherein at least one of the primary place and/or the set of places of the next stage and/or the resulting modified mobile agent is confirmed to at least all other places of the respective stage except the primary place (Fig 2, wherein each item in stage  $S_2$  are capable of executing the process, but only one item is committed at a time to the process).

8. As per claim 6, Rothermel teaches the method of claim 4 wherein at least one of the primary place and/or the set of places of the next stage and/or the resulting modified mobile agent is moved to all places of the next stage (Fig 2).

9. As per claim 7, Rothermel teaches the method of claim 6 wherein the move is performed as a reliable forward function (pg 3, Col. 1, lines 1-15, wherein if there is a failure, another agent will take over, thus providing reliability).

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10. As per claim 8, Rothermel teaches the method of claim 1 wherein the steps are managed by a fault-tolerance enabler (FTE) (pg 3, lines 45-53, wherein orchestrator plays fault tolerance role as it will decide on which item in the stage gets to execute the process through a voting process) which is independent of the mobile agent (Fig 4).

11. As per claim 9, Rothermel teaches the method of claim 8 wherein the FTE travels with the mobile agent to the set of places of the respective stage (pg 3, lines 45-53, wherein orchestrator plays fault tolerance role as it will decide on which item in the stage gets to execute the process through a voting process, furthermore, each stage will require a voting process to determine the committing node).

12. As per claim 10, Claim 10 is rejected for the same reasons as rejection to claim 1 above.

13. As per claim 11, Rothermel teaches computer program product according to claim 10, wherein the program code means is stored on a computer-readable medium (Fig 3, wherein stages has the ability to store software programs inherently).

14. As per claim 12, Claim 12 is rejected for the same reasons as rejection to claim 1 above.

15. As per claim 13, Rothermel teaches wherein the mobile agent is a computer program that acts autonomously on behalf of an agent owner or user and that travels through a network of a number of computers (it should be noted that observer nodes automatically decided upon themselves through a voting protocol, which node will be the primary node. The primary node is then carrying the information to the next stage, see Col. 2, lines 25-35; Fig 3).

16. As per claim 14-15, the claims are rejected for the same reasons as rejection to claim 13 above.

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*Claim Rejections - 35 USC § 103*

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rothermel et al. (hereinafter Rothermel) "A Fault-Tolerant Protocol for Providing the Exactly-Once Property of Mobile Agents", 1998, in view of Greenberg et al. (hereinafter Greenberg), "Mobile Agents and Security", July 1998, IEEE Communications Magazine.

19. As per claim 16, Rothermel does not explicitly teach non-primary places are configured to verify the modified mobile agent has successfully arrived at the set of places of the next stage to which the modified mobile agent is moved.

In a similar system, Greenberg teaches the concept of verification of codes and/or agents going to the next stage are error free. Specifically, the errors are in the form of malicious programs, and a separate entity in the form of "security manager" or equivalent will then verify the contents going into the next stage in a mobile agent system (pg 6, lines 25-45). It would have been obvious to the person of ordinary skill in the art at the time of the invention to combine teachings of Rothermel and Greenberg because having a separate verification entity to verify the content of the message going into the next stage in a mobile agent system as taught by Greenberg would enhance the security and fault tolerant aspect of Rothermel by verifying the content for successful arrival at the destination.

20. As per claim 17-18, the claims are rejected for the same reasons as rejection to claim 16 above.

*Response to Arguments*

21. In the remark, the Applicant argued in substance that unlike Rothermel, the current invention requires that the modified mobile agent be moved to the next stage by at least two forwarding places.

In response to Applicant's remarks, it is not clearly understood how it is possible to agreeing on a primary place and aborting and/or undoing any operation in connection with the mobile agent in any other place of the respective stage and then moving a modified mobile agent resulting from the successful execution to the next stage from at least two forwarding places. These two limitations contradict each other, thus rendering the claims indefinite. For the purpose of examination, the Examiner will interpret "from at least two forwarding places" as "involving at least two forwarding places". Following the above concept, on pg 3, Col. 2, lines 28-35, Rothermel discloses plurality of places are involved in determining which of the forwarding places would send the data to the next stage.

22. In the remark, the Applicant argued in substance that claim 4 requires the generated decision to include three items of information.

In response to Applicant's arguments, the "at least one of" language still applies to the current claim. For the purpose of examination, the Examiner will interpret "at least one of" as only one of the three limitations maybe satisfied. Rothermel's reference satisfies at least one of the three limitations of claim 4.

*Conclusion*

23. Applicant's remarks filed 03/31/2005 have been considered but are found not persuasive in view at the new grounds at rejection necessitated by Applicant's amendment.



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24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents and publications are cited to further show the state of the art with respect to "a FAULT-TOLERANT MOBILE AGENT FOR A COMPUTER NETWORK".

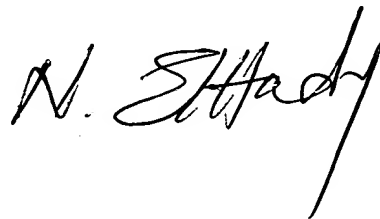
- i. "A Secure Active Network Environment Architecture: Realization in SwitchWare", Alexander et al. 1998

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chad Zhong whose telephone number is (571)272-3946. The examiner can normally be reached on M-F 7:15 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BURGESS, GLENTON B can be reached on (571)272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CZ  
September 7, 2005

A handwritten signature in black ink, appearing to read "N. El-Hady", with a long, sweeping vertical stroke extending downwards from the end of the name.